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ABSTRACT

Studies in the past have shown that reinforcements independent of the subjects actions may induce a feeling of helplessness. Most experiments on learned helplessness have led researchers to believe that uncontrollability (non-contingency of feedback upon response) was the determining feature of learned helplessness, although in most studies failure (at the task assigned) was always associated with non-contingency. Actually, it is not clear whether uncontrollability or failure is responsible for the learned helplessness effect, nor is it clear which of these two factors would be sufficient to induce the deficits found. In the present investigation this confusion is examined experimentally. Two experiments were conducted, in which the subjects were 35 undergraduate students enrolled in an introductory psychology course. The students were pre-tested and given first a task involving problem-solving, and then one that did not involve problem-solving. Results suggest that uncontrollability is not a necessary or sufficient condition to produce helplessness. On the other hand, both contingent and non-contingent subjects who experienced failure in a pretreatment task subsequently displayed deficits on tasks that did not require a problem-solving strategy. It is proposed that "learned incompetence" may better account for what is experienced by subjects in this type of experiment. Other theoretical, methodological and practical considerations are examined. (Author/AB)

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"LEARNED HELPLESSNESS" OR "LEARNED INCOMPETENCE"?¹

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ABSTRACT

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Most experiments on learned helplessness have not dissociated contingency from success and this had led researchers to believe that uncontrollability (non-contingency) was the determining feature of learned helplessness, although in most studies failure was always associated with non-contingency. Actually, it is not clear whether uncontrollability or failure is responsible for the learned helplessness effect, nor is it clear which of these two factors would be sufficient to induce the deficits found. In the present investigation this confusion is examined experimentally with results which suggest that uncontrollability is not a necessary or sufficient condition to produce helplessness. On the other hand, both contingent and non-contingent subjects who experienced failure in a pretreatment task subsequently displayed deficits on tasks that did not require a problem-solving strategy. It is proposed that "learned incompetence" may better account for what is experienced by subjects in this type of experiment. Other theoretical, methodological and practical considerations are examined.

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"LEARNED HELPLESSNESS" OR "LEARNED INCOMPETENCE"?

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Seligman's learned helplessness (LH) model now has more than a ten-year history (Overmeier and Seligman, 1967; Seligman and Maier, 1967), not to mention its precursors (e.g., Dulany, 1957). Although not yet mature, the model does have growth potential, if cultivated and canalized. In fact, the coming years should prove crucial for the LH model.

There is no question about the model's charm, so many and diverse are the research studies based on it (see the review of Roth and Tabak, 1976). The application of an animal-based methodology to human beings has interested many psychologists who saw a means of evoking and probing experimentally the state of depression and helplessness in man. The results have not proved as promising with humans as with animals, and Roth and Takak (1976) argue that this may be due to a lack of consistency in experimental designs and to a rather over-simplified conception of the human being. Nevertheless, most of the research with humans has confirmed the essential influence that uncontrollability has on creating a state of helplessness when subjects (Ss) learn that the outcomes they receive are

independent of their responses, which in turn produces deficits in motivation, emotion and learning (Seligman and Maier, 1976).

One important aspect of the phenomenon is the often inappropriate generalizations made from one situation to another, that is, from experimental to real-life situations or the reverse. In human studies, absence of control has been created by experimenters who try to induce helplessness through exposure to uncontrollable aversive stimuli (Hiroto, 1974; Hiroto and Seligman, 1975; Miller and Seligman, 1973) or by non-contingent (or random) feedback given as Ss attempt to solve problems (Roth and Bootzin, 1974; Roth and Kubal, 1975; Cohen, Rothbart and Phillips, 1976). These types of pretreatment tasks produced subsequent deficits in performance when Ss were confronted with new tasks of a totally different nature. Some refinement was brought by Hiroto (1974) who demonstrated the importance of expectancy, e.g., that responding and reinforcement were independent. Using the Internal-External Locus of Control Scale (Rotter, 1966), Hiroto showed that those who felt that their reinforcements were independent of their actions (externals) displayed greater helplessness effects than those who thought their responses and outcomes were contingent (internals).

More recently, Cohen, Rothbart and Phillips (1976) studied another aspect of the inappropriate generalization of

the perception of uncontrollability. They found that the LH effect could be transferred from problem-solving tasks to non-problem-solving tasks, depending upon the S's perception of locus of control. It now appears that the LH effect can be generalized to a wide range of cognitive tasks and this makes Seligman's model more appealing and potentially more fruitful to psychologists, provided precautions are taken to keep its development on the right track.

Some questions have already been raised about methodological and theoretical aspects of the study of LH in humans (Roth and Tabak, 1976). The two experiments described below have other implications of a theoretical, methodological and practical nature.

Theoretical. Most of the experiments on LH used a design wherein a group of Ss has no control over reinforcements, and this supposedly accounts for the failure experienced in the experimental task used to produce the helpless state. Thus, failure is confounded with non-contingency of reinforcements and responses just as success is confounded with contingency of reinforcements and responses. These factors could be dissociated, and until that is done, one wonders what actually accounts for the LH effect. Are non-contingency and failure both necessary or is one sufficient? Seligman claimed that "non-contingent positive events can produce helplessness and depression" (1975, p. 98), which strongly suggests that non-

contingency and not failure is responsible for the LH effect, even though his claim does not seem to jibe with certain empirical evidence. It is important we feel to experimentally test this assertion and to examine whether a S's awareness of his incompetence at solving a task may not be as important or more so as an explanation of subsequent deficits in performance.

One also wonders whether the standard experimental manipulations might be too artificial. Do helpless people actually react to the manipulations of others in their environment? If so, Seligman's model may be biased toward paranoia. In fact, as noted by Roth and Tabak (1976), it is not clear what the effects of these types of manipulation are. It would at least be advisable to consider more naturally induced LH effects.

Moreover, Ss are typically students in psychology who are not likely to be representative of the general population in that "non-noxious" pretreatment tasks usually involve concept-formation tasks. They could well induce a "noxious" connotation for psychology students who fail on such tasks. The S's perception of his ability or competence to solve intellectually-oriented problems is a very sensitive matter which has not yet been adequately studied.

Methodological. In order to dissociate contingency from success, it is necessary to use a task which does not require Ss to find a principle, or, at least, which is not

based on a single global answer. Furthermore, it is necessary that the task be difficult enough to "allow" Ss to make mistakes, on their own. By using a pretreatment task comprised of independent, successive problems of increasing difficulty, it might provide results where failure is not due to an experimenter's manipulations but to Ss' incompetence at solving the problems. Moreover, the concept-formation tasks typically used do not provide information on what the actual performance of the S would have been if he had not been given non-contingent feedback. It might be instructive therefore to examine the LH effect by comparing a S's actual performance in the context of the feedback given him.

Experimenters have tried to refine pretreatment procedures in such a way that both contingent and non-contingent Ss receive the same number of positive and negative feedbacks (Hiroto and Seligman, 1975; Cohen et al., 1976). However, in these studies, the order of non-contingent feedback was randomly distributed, and this produced important group differences. For instance, in the Cohen et al., experiment (1976), contingent Ss necessarily ended the pretreatment task with ten successive positive feedbacks, which was not the case for non-contingent Ss. Thus, it is important to equalize the total number and the number of positive feedbacks as well as the order in which each type of feedback is given.

Practical. If one of the LH aftereffects is a deficit in learning, this should be taken into consideration by those who use successive item aptitude tests for evaluation of individuals. Since, as we have argued, it is not clear whether uncontrollability or failure accounts for such deficits, it could be that failure on one item or subset could impair subsequent performance. Thus, test batteries may expose a person to situations where not only his capabilities are under scrutiny, but also his previous performance, his ability to deal with failure, and his skill at overcoming the effects of helplessness. In other words LH may actually be only a secondary effect of learned incompetence, some people being able to overcome failures which may be taken as incentives, while others are prone to succumb to helplessness because of a preoccupation with incompetence which is generalized to all kinds of tasks.

The two experiments described below take these various features into consideration. The first is a replication of the Cohen et al., experiment (1976) which interested us in two respects: we wondered if the same results would be obtained with a quite different procedure wherein the same experimenter gives the pretreatment and the aftereffect task, making this more like real life situations. Secondly, the Cohen et al., study serves as a good comparison for our second experiment which uses a different pretreatment task but the same aftereffect task.

EXPERIMENT I

Subjects. Ss were 35 McGill University undergraduate students enrolled in an introductory psychology course during a summer session. Participation in at least one experiment was a course requirement, and learned helplessness was introduced as one of the discussion topics for the course after all the Ss had participated. Later, students were requested to write a paper about the topic as another requirement for the course.²

Locus of Control Scale. Rotter's (1966) version of the Internal-External Locus of Control Scale was administered the second day of the class by an experimenter unassociated with the experiment itself. This scale was presented as an example of psychological questionnaires. It was then scored in the "external" direction, resulting in a distribution ranging from 1 to 18 with a mean of 10. Ss with a score of 12 or more were labeled "external"; those with a score of 8 or less, "internals"; those with scores of 9, 10 or 11 were used as a control group for the two experiments, and participated only in the "aftereffect task" of this experiment.

Ss were told they were to participate in two different and independent experiments conducted by the same experimenter who was working as a research assistant for two professors with

quite different research interests. Three groups of Ss were constituted: 14 "externals", 14 "internals" and 7 controls.

Pretreatment. The Ss' first task was the concept-formation problem used by Roth and Bootzin (1974) in their training situation (Task 1A) and by Cohen, Rothbart and Phillips (1976). The task was developed from stimuli used by Postman (1954).

The S seated in front of the experimenter was presented a card on which three groups of two designs were drawn, one group at the top, the stimulus figures, and two groups at the bottom, the two possible response figures. One set of response figures was drawn according to a specific principle: a line from the left design was transferred to the right design. On each card, one of the two response figures conformed to this principle.

 Insert Figure 1 about here

The S was to find the principle relating stimulus and response figures by choosing one of the two response figures and by using the feedback he would receive from the experimenter. He was to find the principle in as few trials as possible. An example using a different rule was presented to make sure Ss understood the task. Ss were told that the session would terminate when twenty successful trials had been reached.

Each card was a 12 cm. square of rigid white paper with designs drawn in black. A card was presented for 4 sec., and after the S had made his choice, he would be told "correct" or "incorrect" by the experimenter. There were 80 cards in all, and these were repeated, if necessary.

The two groups of 14 subjects "externals" and "internals", were randomly assigned to one of two conditions, making 4 sub-groups with 7 Ss per sub-group. One sub-group of internals and one of externals were given contingent feedback. In the contingent feedback condition, the S was told that his response was "correct" whenever he chose the group of figures conforming to the principle, and "incorrect" if he chose the other group of figures. The session terminated as soon as the S gave 20 successive correct responses. The cards were presented a second time if the S had not found the principle within 80 trials. In the non-contingent condition, each S was "yoked" to a contingent S in terms of the number of correct feedbacks received and the total number of trials. For the non-contingent condition, the order of "correct" and "incorrect" feedbacks was made to be random.

Aftereffect task. After the concept-formation task, Ss were asked to participate in a second experiment, in the same room and with the same experimenter. The second task was an adaptation of the Stroop test (Lambert, 1969) consisting

of three different parts. In the first part, they had to read aloud the color names (red, orange, blue and brown) which were in ink colors different from those evoked by the color names. For the second part, they were to call out the colors of the inks (blue, green, red and brown) as accurately and rapidly as possible. For the third part -- the Stroop test proper -- Ss had to call out the ink colors and try to ignore the color names in the background. Colors and color names were printed on white rigid sheets of paper; each part consisted of 200 stimuli.

The time taken to complete each part was timed and errors were recorded. An error was counted when the S named or read a wrong color or when he skipped one of the stimuli. Hesitations, stuttering, syncope or elision were not considered as errors.

After the Stroop test, each S filled in a questionnaire, using 7-point scales, to assess how difficult, how stressful, and how frustrating he had found the concept-formation task, and how successful he thought he was. (The experimenter said that she had "forgotten" to give the questionnaire after the concept-formation task.) They were also asked whether, at any time in the concept-formation task, they were suspicious about the feedback they received. Then, the full purpose of the experiment was explained and non-contingent Ss were told in detail about the manipulation they had been subjected to.

Results

Pretreatment: The Concept-Formation Task. There was no significant difference between internal and external Ss who received contingent feedback in the total number of trials taken to find the principle (for internals, $M = 91.71$, and for externals, $M = 82.82, p > .05$). This means that non-contingent Ss received about the same number of trials as the contingent Ss.

Aftereffect: The Stroop Test. Six different measures were obtained in the aftereffect task: (1) the time to read the color names; (2) to name the ink colors; (3) to name the ink colors that conflict with color names (e.g., the word RED colored with green ink). The three remaining measures were the number of errors for each part. Results are shown in Table 1.

There were no significant time differences among groups, considering contingent, non-contingent and control subgroups, as well as internal and external subgroups. However, the contingent and non-contingent subgroups were significantly different on the three measures of errors whereas the control and contingent subgroups were not. On the first Stroop task, non-contingent Ss made more errors than contingent Ss ($F(1, 24) = 4.91, p < .05$). On the second Stroop task, the non-contingent Ss made significantly more errors ($F(1, 24) = 18.17, p < .001$) than they did on the third

Stroop task ($F(1, 24) = 39.29, p < .001$). No interactions between contingency and locus of control were found for any of the six measures.

 Insert Table 1 about here

Questionnaire Results. Four measures were obtained from the questionnaire about Ss' perceptions of their performance on the pretreatment task (see Table 1).

Internals found the concept-formation task more difficult than externals ($F(1, 24) = 4.52, p < .05$) and non-contingent Ss found the same task more difficult than the contingent Ss ($F(1, 24) = 4.52, p < .05$). Contingent Ss felt that they were more successful on the pretreatment task than the non-contingent Ss did ($F(1, 24) = 7.55, p < .05$) and internals found it more stressful than did externals ($F(1, 24) = 5.41, p < .05$). Finally, the pretreatment task was rated as more frustrating by non-contingent Ss than by contingent Ss ($F(1, 24) = 8.54, p < .01$). There was no interaction between contingency and locus of control.

When asked whether they felt suspicious about the feedback they were given, neither contingent nor non-contingent Ss were aware of any type of falsification. However, some Ss seemed irritated and restless during the pretreatment task, especially those in the non-contingent condition.

Discussion

Results obtained in this first experiment are in several respects different from those obtained by Cohen, Rothbart and Phillips (1976). While their groups were not significantly different in terms of number of errors, their external non-contingent Ss were poorer on the second and third tasks of the Stroop test. This difference in outcome could be due to procedural differences in the two experiments. Although the two tasks (pretreatment and aftereffect) were presented as two independent experiments, they were, in the present study, conducted by the same experimenter in the same room.

In the present study, non-contingent Ss found the pretreatment task to be more frustrating and difficult, and they rated themselves as less successful at it than did the contingent Ss, suggesting to us that non-contingency had a more negative discouraging effect on them than on the contingent Ss. The efficiency of non-contingent Ss in dealing with the Stroop task was significantly impaired. Thus, the performance scores and the perceptions of Ss can be interpreted in terms of LH effect. However, it was at the level of accuracy, rather than time that the impairment showed itself, and this could be due to the presence of the same experimenter in the two tasks. Thus, non-contingent Ss may have tried to compensate for their poor public performance in front of the experimenter on the first task by arguing that, in the Stroop task,

rapidity was a better criterion of success than accuracy. With this approach, they would less likely lose face a second time in front of the experimenter, although they would not likely overcome totally the aftereffect of the non-contingent treatment to which they had been submitted earlier. The deficits of the non-contingent Ss may be considered as a residue of their experiences with the non-contingent feedback in the pretreatment task.

When our results are compared to those of Cohen et al., (1976), one has the impression that the presence of the same experimenter for both the pretreatment and aftereffect conditions may have induced a different type of LH effect in non-contingent Ss -- they may have been reacting to the witness of their failure. Perhaps this is why, in this experiment, both internal and external non-contingent Ss made more errors in the Stroop task than did the external non-contingent Ss in Cohen et al.'s (1976) experiment. What is suggested here is that a student who has already failed once in an oral exam would feel more tense and anxious if he had to take a second exam with the same teacher than with another person entirely. This procedure nonetheless is appropriate for eliciting a LH effect and was used again in the second experiment.

Non-contingent Ss estimated that they were less successful in the pretreatment task than contingent Ss did, and this result is not surprising. Still, Cohen et al.'s non-contingent

Ss found themselves as successful as contingent Ss which is more puzzling. Why would Ss rate themselves successful when they had to find an underlying principle in a complex problem and were given random feedback so that they actually could not succeed? Perhaps Cohen et al.'s Ss were very tolerant in rating their performance or perhaps their contingent Ss were very harsh at assessing themselves.

Although the results of our first experiment were not as expected, in light of previous studies, they showed an impairment in the efficiency to deal with the Stroop test for those Ss who had been submitted to the non-contingent treatment. It is, however, questionable whether uncontrollability is the determining variable. No S was aware or suspicious about the non-contingent feedback. One wonders then whether helpless people are typically unable to explain their state of mind. Yet, it may be that an organism expects that a bad event can reappear, but one may question what is actually learnt. Ss in this experiment realize that they could not solve the problem in spite of their trying and they were certainly aware of this fact revealing their incompetence. The fact that Ss given non-contingent, always "correct" feedback (Benson and Kennelly, 1976) do not display any subsequent deficit suggests that uncontrollability is not the determining variable. It seems that, by naming his model "Learned Helplessness", Seligman skipped one step in his attempt to

explain helplessness. It seems necessary that "something" be learned by the S about his situation, and then, depending on its impact on him, subsequent states in the form of helplessness or facilitation may appear (see Roth and Kubal, 1975). The next experiment tries by dissociating contingency from success to investigate what this something could be.

EXPERIMENT II³

Method

Subjects. Ss were 42 McGill University undergraduate students, placed in the same conditions as the Ss in the first experiment, except that the experiment was not part of the requirement for their course.

Procedure. The procedure was exactly the same as for the first experiment except for the pretreatment task.

The locus of control scale was administered and Ss were grouped as "internals" (20), and "externals" (22). No new control group was sought; instead for the "aftereffect task" the original control group of Experiment I was used again.

Pretreatment. The pretreatment task used in this experiment was based on the "Revised Minnesota Paper Form Board Test" (Likert and Quasha, 1941). The test comprised 64 problems measuring spatial reasoning ability that increase in difficulty. There are two parallel forms of the test (AA and BB), equally difficult, and each taking 20 minutes.

In this experiment, a series of problems were presented separately and independently on white cards. The problems chosen were the questions 18 to 47 of both series, giving a total of 60 successive problems of increasing difficulty (18 AA, 18 BB, 19 AA, etc....). On each card, six figures were presented: one stimulus figure and five possible response figures. The stimulus figure was composed of two or more unassembled parts. The five response figures were composed of as many parts as the stimulus figure, each representing a different assembled figure. The S's task was to decide which among the five response figures depicted the actual stimulus figure (see Figure 2).

The Ss were told that sometimes the parts had to be turned around and that sometimes they had to be turned over in order to make them fit. An example was worked through to make sure the task was understood. Then, the S was presented the first card and was told that the experimenter would inform him whether each of his choices was "correct" or "incorrect". Each card was presented for 20 sec. after which the S had to answer.

 Insert Figure 2 about here

As in the first experiment, Ss were grouped: those in the contingent condition heard "correct" or "incorrect"

whenever their response was right or wrong. Each S did the 60 problems and his response was registered manually. Each S in the non-contingent condition was yoked to a contingent S, and the feedback given the former was the same as that given to the contingent Ss to whom he was yoked, for each problem. This procedure allowed a pair of contingent and non-contingent Ss to receive exactly the same number and ordering of correct and incorrect feedbacks as well as registering the actual performance of the non-contingent S.

After-effect Task. The Stroop test was then run exactly as had been done in the first experiment. The same questionnaire was also given and the experiment ended by a debriefing about the manipulation used in this experiment.

Results

As was done in the first experiment, the results of the four different subgroups were compared: external contingents, external non-contingents, internal contingents and internal non-contingents. No significant group differences were found either for time or for errors on the Stroop test or for responses to the questionnaire. In the pretreatment task external contingent and internal contingent Ss were not significantly different: internals received 58.9% "correct" feedbacks and externals 52.5% ($F(1, 34) = 2.03, p < .15$). Accordingly Ss in the non-contingent conditions received essentially the same number of "correct" feedbacks.

The performance data were then processed in a different

fashion, this time with attention directed to the percentage of "correct" feedbacks received by each S in contingent and non-contingent conditions, considering as well whether they were classified as externals or internals. All told, eight subgroups were considered and compared by means of analysis of variance. The distribution of total number of "correct" or "incorrect" feedbacks was split at the 50% point to form two further subgroups: those who had above average amounts of positive feedback versus those who had average or below average amounts. Results are displayed in Table 2.

 Insert Table 2 about here

Pretreatment Task. There was no significant difference in the performance of internal and external contingent Ss on the whole although more internals and externals contingents received above average amounts of "correct" feedback in the ratio of 7 to 3.

Although the non-contingent Ss received the same proportions of positive feedback as the contingents to whom they were yoked, it was possible to record their actual scores, disregarding the yoking effect. Although contingent and non-contingent Ss were given quite different treatments, nonetheless interesting to find that contingent Ss performed significantly better than non-contingents ($F(1, 34) = 4.93, p < .05$).

Aftereffect Task. Stroop Test Performance. No significant differences were found in the time taken to read color names (task 1) or give ink colors (task 2) on the Stroop test, nor were there significant group differences in the number of errors for these two tasks. For the Stroop test itself (task 3), the performance of non-contingent and contingent Ss who received below average percentages of "correct" feedback was significantly impaired compared to the remaining Ss ($F(1, 34) = 8.86, p < .005$). No interactions were significant, even marginally, in this task, showing that the percentages of "correct" feedback accounted for the performance difference between the two groups.

For the same task 3, externals -- both contingent and non-contingent -- who received above average proportions of "correct" feedback made significantly more errors than did internals subjected to the same condition treatments ($F(1, 34) = 5.01, p < .05$).

Questionnaire on the Pretreatment Task. All groups gave essentially similar rating of difficulty for the Minnesota Paper Form Test. However, Ss who were given above average proportions of "correct" feedback thought that they had been more successful, whatever their condition was ($F(1, 34) = 16.22, p < .001$), than did Ss who were given below average proportions of "correct" feedback. In this case, there was also a significant interaction of locus of control and percentage of "correct" feedback, indicating that internal non-con-

tingent Ss were most extreme in their feelings of success, depending on the percentage of "correct" feedback they received, while external contingent Ss were more extreme than external non-contingent Ss ($F(1, 34) = 15.32, p < .001$).

No other differences were found between the groups. As in the first experiment, Ss were asked about their impression of the pretreatment task and none, even those in the non-contingent condition, was aware that he had been given incorrect feedback. Still all acknowledged that the task was a difficult one.

Discussion

Certain differences in performance were found between internals and externals, for example, externals performed more poorly than internals in the non-contingent condition of the pretreatment task, as Hiroto (1974) had found in his investigation. However, it is not clear whether this difference reflects a LH effect occurring during the pretreatment task. More externals received below average proportions of correct feedback during the pretreatment task and this could affect their actual performance. In any case, there were no differences between externals and internals in the aftereffect task, and the locus of control variable will be dropped in the following discussion.

Several of our results are not consistent with previous investigations that have contributed to the LH model and these inconsistencies provide tentative answers to the questions raised

in the introduction. For instance, contingent and non-contingent groups performed essentially alike on the aftereffect task. Thus, S's performance on the Stroop test is apparently not dependent on the contingency-non-contingency of the feedback received, but instead on the amount of "correct" feedback received from the experimenter. By dissociating contingency and success, and non-contingency and failure, it appears that non-contingency is neither a necessary nor a sufficient precondition to subsequent deficits in Ss' performance on a non-problem solving task. Instead, we suggest that awareness of one's own failure may be a determining factor for impaired performance in a subsequent task.

Ss assessed their own performances according to the feedback they had been given and those who received below average proportions of "correct" feedback -- whether they were in the contingent or the non-contingent condition -- thought they had been less successful than the remaining Ss. Thus, the proportions of "correct" feedback received seemed to influence performance on a subsequent task as well as the perceptions of success. This is consistent with the results of our first experiment where non-contingent Ss who failed to find the principle rated themselves as less successful than contingent Ss. This outcome is also consistent with Roth and Kubal's (1975) findings as well. However, as mentioned earlier, Cohen et al., (1976), did not find differences in

the perceived success of contingent and non-contingent Ss, and this we found to be somewhat surprising. It is important to understand why Ss performed more poorly when they received below average proportions of "correct" feedback. This could be a result of their learning that they cannot control their reinforcements or a consequence of their learning that they are not able to succeed, or simply an affective response to failure.

If in this case these Ss learn that they cannot control their reinforcements, this uncontrollability would originate from themselves and not from an external manipulation. Contingent Ss who performed below the average were not prevented from doing better; their own competence or incompetence accounted for their actual performance.

Non-contingent Ss' performance in the Stroop task was related to the amount of "correct" feedback they received in the pretreatment task and not to their actual score which they were not aware of. It is likely that their perceived failure accounted for their deficit. But what did they learn? In both conditions, those with below average amounts of "correct" feedback would feel that they were doing poorly, and their impairment in the aftereffect task could be due to the uncontrollability of non-contingent conditions. But what about the contingent Ss? Perhaps they learned that there was an internal uncontrollability over the reinforcement due to their inability to perform a task.

On the other hand, perhaps those who received less than 51% of "correct" feedbacks, whether in the contingent or non-contingent condition, were aware of doing poorly and may have learned that they were incompetent at the task. At least the results strongly suggest that perceived failure and not non-contingency accounts for the deficit in the aftereffect task. It has recently been shown (Isen, Clark, Shalker & Karp, 1978) that mood and cognitive processes are not independent from each other and are said to be very much related and interactive. It is likely that success and failure, as experienced by our Ss, induce an emotional state, positive or negative, which prevails during the after-effect task and influence efficiency in performance. Thus, Ss may affectively react to failure and be handicapped in their achievement, but in any case, awareness of failure would be necessary.

Would such an interpretation account for results found in other human experiments (cf., Cohen et al., 1976; Roth & Kubal, 1975; Roth & Botzin, 1974), or would it be specific only to this experiment? Since non-contingency and failure were previously confounded, it is conceivable that only one of these factors was the determining one. The results of the first experiment, as those of Cohen's et al., (1976) study, may be explained by the failure experienced during the pretreatment. As a matter of fact, Benson & Kennelly (1976) have already shown that uncontrollable reinforcements did not necessarily

induce subsequent deficits. Moreover, the fact that uncontrollable positive events do not produce helplessness (Benson et al., 1976) contrary to Seligman's claim (1975), is verified here with the same non-contingent Ss whose "correct" feedback was superior to their actual performance and who did not show any deficit in the aftereffect task. All the experiments undertaken so far used a design where the experimenter's manipulation in the pretreatment prevented the non-contingent Ss to succeed in spite of their trying, which then induced what was called a LH effect. By showing that only failure is necessary to produce this effect in this experiment, it is suggested that, in other experiments, it was also the inability to succeed which was responsible for the subsequent deficit, at least when the pretreatment task consisted of concept-formation or intellectually oriented problems.

By suggesting a "learned incompetence" label, there are two essential aims, among which the rejection of Seligman's model is certainly not included. At first, "incompetence" seems better than "competence" (cf., Benson et al., 1976) since the phenomenon that is studied is the deficit in S's performance. Secondly, it seems that, before reaching a state of "learned helplessness", a S has to go through some process depending on the impact an event has on him (cf., Roth and Tabak, 1976). Helplessness is not the direct and necessary consequence of an aversive or uncontrollable

situation but only a secondary reaction to a setting that draws on past experiences, expectations and the impact of the situation on the S. Since uncontrollability is not a necessary factor in determining subsequent deficits, and since helplessness does not necessarily follow non-contingent conditions (cf., Roth and Kubal's (1975) facilitation effect), it appears necessary to explain the deficits in terms of experienced failure or "learned incompetence".

No facilitation effect was found in this experiment and this effect may appear only when two experimenters are used (cf., Roth and Kubal, 1975; Tennen and Eller, 1977), which may lead Ss to think they are provided with a second chance. This is not the case when the same experimenter runs the two parts of the experiment, suggesting that Ss are reacting to the experimenter, to some extent.

Conclusion. The learned helplessness model is based on experiments which have almost always confounded non-contingency and failure, and this flaw in the experimental designs may have led researchers to consider uncontrollability as a factor more important than it actually is. In fact, uncontrollability, as used in most experiments is just an accidental expedient to prevent a S from succeeding, and failure alone could be the determining factor of subsequent deficits in S's performance. Learned incompetence would then be a better label,

and explanation, of the different phenomena found by Seligman and other researchers.

However, it seems necessary to confirm these results by running an experiment which would systematically analyze the influence of different percentages of "correct" feedbacks given to Ss. Our results show a tendency for a greater deficit when the percentage is low, and a better performance following high percentage, and it seems there exists some linear relation between level of feedback and subsequent performance, but larger groups are necessary to confirm this tendency.

It seems also necessary to verify the impact of the presence of the same experimenter for all subsequent tasks. Facilitation effects have been found only when two different experimenters conducted each task, and it is possible that a greater deficit is obtained when the same experimenter conducts the pre- and post-treatment tasks. However, the latter procedure is important to take into consideration, especially by psychologists who use tests of mental ability in hospitals, schools or industry, Whatever we call the effect found and whatever the determining factor, it is clear that failure at a task induces deficits in subsequent tasks of a same or different nature, and this likely applies to test batteries where the same psychologist gives several successive sub-tests. Although it may appear difficult to modify standardized techniques, it would be necessary to find a way to overcome this

"learned incompetence" effect and to prevent it from generalizing from one test to another.

Learned helplessness models have certainly provided opportunities to experimentally investigate human reactions to uncontrollable situations but it may be that the theory is based on wrong foundations and that what has been studied so far in laboratories refers more to a learned incompetence effect. Uncontrollability is certainly an important factor in the setting of helplessness in everyday life, but the awareness of one's own inability to succeed in spite of one's trying is a more important determinant of deficits, and uncontrollability may just be a special case of learned incompetence.

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FOOTNOTES

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Table 1

Means for the Four Experimental and Control Groups in Experiment I

	Number of Trails (Pretreatment)	STROOP DATA						QUESTIONNAIRE DATA			
		(A) Color-Name Reading Speed (Seconds)	Errors in (A)	(B) Color Naming Speed (Seconds)	Errors in (B)	(C) Stroop Interference (Seconds)	Errors in (C)	How Different?	How Successful?	How Stressful?	How Frustrating?
Externals Contingent N = 7	82.28	85.43	0	129	0.86	205.86	0.71	2.14	5.29	1.43	1.86
Externals Non-contingent N = 7	82.28	87.57	0.14	145	4.57	198.14	4.14	3.57	3.14	2.29	3.43
Internals Contingent N = 7	91.71	87	0	133.57	1.43	217.43	1	3.57	4.71	2.57	2.57
Internals Non-contingent N = 7	91.71	95.43	0.714	156	2.86	222.14	5.43	4.14	3.43	3.43	4.86
Control		91.43	0	143.71	0.28	209.8	1.42				

Note: Stroop A - speed of reading color names; Stroop B - speed of naming ink colors; Stroop C - Stroop interference - speed of naming ink colors while ignoring color names. Questionnaire data based on 1 to 7 scales.

Table 2
Means and Standard Deviations for Eight Groups in Experiment 2

STROOP DATA						QUESTIONNAIRE DATA					
		(A) Color-Name Reading Speed	(B) Color Naming Speed	Errors in (B)	(C) Stroop Interference	Errors in (C)	How Different?	How Successful?	How Stressful?	How Frustrating?	Actual Scores
Internal Contingent	$\bar{x}$	81.67	129.33	1	261.67	3	4.33	3.33	3.33	4.67	43.67
≤ 50 ; N = 3	σ	15.28	21.22	0	27.54	2.65	2.08	2.31	1.15	2.31	6.03
Internal Contingent	$\bar{x}$	88.71	127.43	1.14	210.14	2	4.71	4.14	3.14	3.29	65.43
> 50 ; N = 7	σ	18.98	18.91	1.35	22.89	1.63	1.50	1.46	1.86	1.98	11.53
Internal Non-contingent	$\bar{x}$	75.67	123.67	1.33	2.32	2.33	5	2.67	2.67	3.67	59
≤ 50 ; N = 3	σ	15.04	15.50	0.58	32.60	2.31	1.73	0.58	1.53	1.53	7.55
Internal Non-contingent	$\bar{x}$	82.43	121.29	0.71	203.57	1.71	4	4.71	3.29	3.14	50.71
> 50 ; N = 7	σ	3.31	19.03	1.11	46.59	1.11	1.41	0.76	2.06	1.57	11.06
External Contingent	$\bar{x}$	83.13	122.38	2.13	233.75	2.13	5.63	2.25	3.5	4.75	45.88
≤ 50 ; N = 8	σ	12.51	5.26	2.36	52.04	1.55	1.19	1.04	1.77	1.28	5.49
External Contingent	$\bar{x}$	97.33	133.67	2	193.33	3.67	4.33	5.67	3.33	3	70
> 50 ; N = 3	σ	42.85	33.17	2	41.63	2.52	1.15	1.15	1.15	1	14.08
External Non-contingent	$\bar{x}$	79.75	126.25	1.25	219.38	1.63	4.88	3.5	2.88	4	44.63
≤ 50 ; N = 8	σ	14.39	18.19	1.49	24.52	1.60	1.96	1.31	1.55	1.60	15.80
External Non-contingent	$\bar{x}$	75	133.33	3	179	3.67	5	4	4.33	3.67	33.67
> 50 ; N = 3	σ	3	15.28	1	54.46	1.15	1.73	1	1.15	2.89	17.79

Note: Stroop A, B and C as in Table 1. No error was made by any subject in Stroop A. Actual scores refer to the percentage of correct responses given by subjects in the pretreatment task.

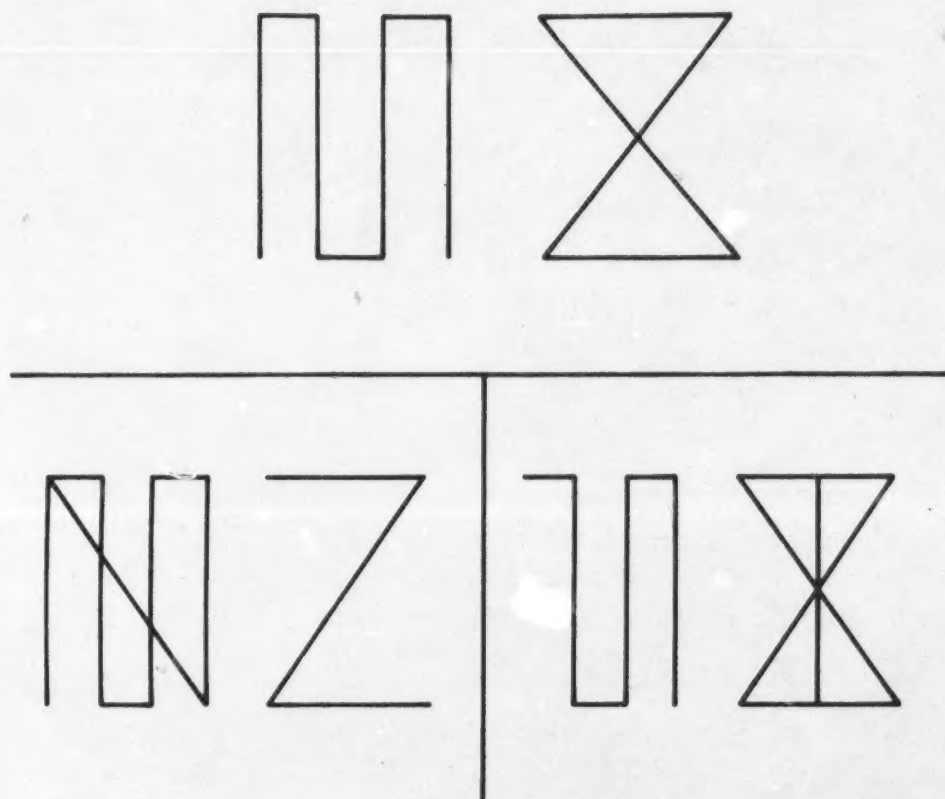


Figure 1. EXAMPLE OF STIMULUS USED IN
THE PRETREATMENT TASK FOR THE FIRST
EXPERIMENT

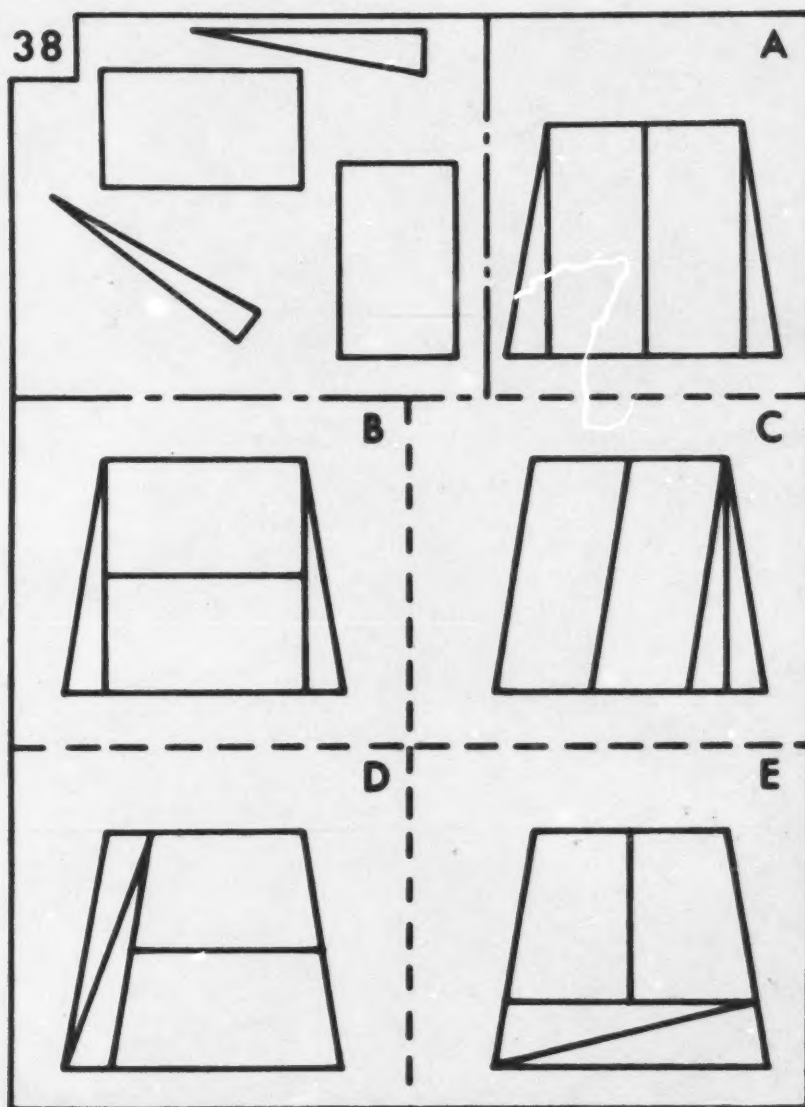


**Figure 2. EXAMPLE OF STIMULUS
USED IN THE PRETREATMENT TASK
FOR THE SECOND EXPERIMENT**